

=> file reg

FILE 'REGISTRY' ENTERED AT 14:08:51 ON 14 APR 2005  
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L1 FILE 'LREGISTRY' ENTERED AT 13:21:02 ON 14 APR 2005  
STR

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L3 FILE 'LREGISTRY' ENTERED AT 13:31:14 ON 14 APR 2005  
STR L1

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STR L3

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L7 42 S L5 FUL  
SAV L7 EIN000/A

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FILE 'ZCAPLUS' ENTERED AT 13:46:14 ON 14 APR 2005  
 L15 8 S L13

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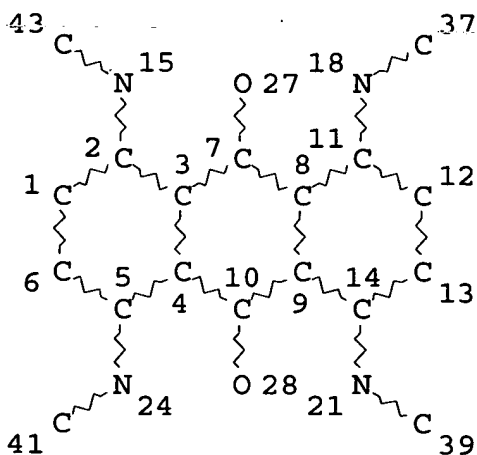
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 SAV L24 EIN000D/A  
 L25 11 S L24/COMPLETE

FILE 'REGISTRY' ENTERED AT 14:08:51 ON 14 APR 2005

=> d l13 que stat

L5 STR



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DEFAULT ECLEVEL IS LIMITED

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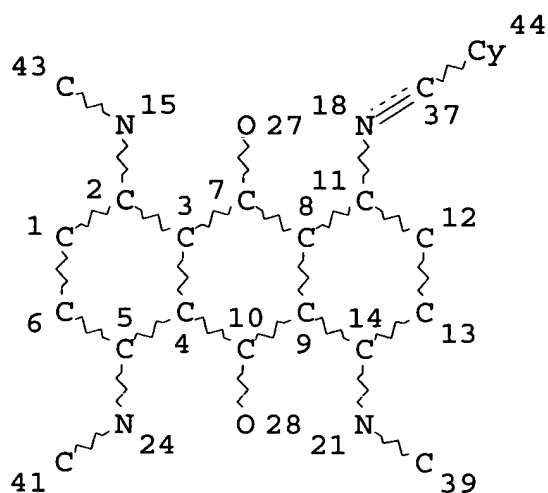
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NUMBER OF NODES IS 24

## STEREO ATTRIBUTES: NONE

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L11 STR



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RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 25

## STEREO ATTRIBUTES: NONE

L13 10 SEA FILE=REGISTRY SUB=L7 SSS FUL L11

100.0% PROCESSED 42 ITERATIONS

10 ANSWERS

SEARCH TIME: 00.00.01

=&gt; file zcaplus

FILE 'ZCAPLUS' ENTERED AT 14:09:11 ON 14 APR 2005

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

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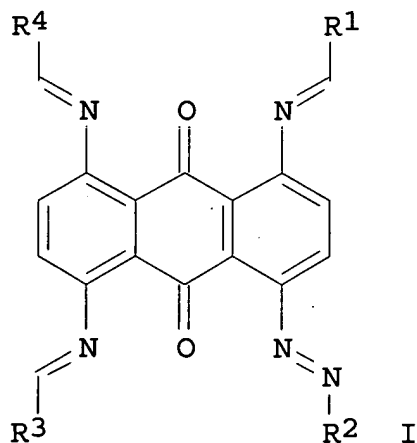
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=> d 115 1-8 cbib abs hitstr hitrn

L15 ANSWER 1 OF 8 ZCAPLUS COPYRIGHT 2005 ACS on STN

2004:427653 Document No. 140:425920 Tetrakis(arylimine)anthraquinone dyes for marking of hydrocarbon-based petroleum fuels and products. Ho, Kim Sang; Stephens, Randall Wayne (Rohm and Haas Company, USA). Eur. Pat. Appl. EP 1422284 A2 20040526, 5 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK. (English). CODEN: EPXXDW. APPLICATION: EP 2003-256979 20031105. PRIORITY: US 2002-PV428412 20021122.

GI



AB Liq. petroleum streams and hydrocarbon products are invisibly marked by adding tetrakis(arylimine)anthraquinone dyes of general structure I (R1, R2, R3, and R4 are aryl or heteroaryl), with at least one absorption max. of 710-900 nm (preferably 750-900 nm). Typically, I is described with R1, R2, R3, and R4 being either all Ph or all substituted Ph, and is synthesized by condensation reaction of 1,4,5,8-tetraamino-9,10-anthraquinone with RCHO (R is Ph, substituted Ph, aryl, or heteroaryl). Preferably, the above anthraquinone dye is present at 0.01-2 ppm concn. and can contain addnl. dyes (preferably 0.2-2 ppm of a visible dye). The dyes are suitable for marking of such com. hydrocarbon products as lubricating oils, hydraulic fluids, brake fluids, gasoline, diesel

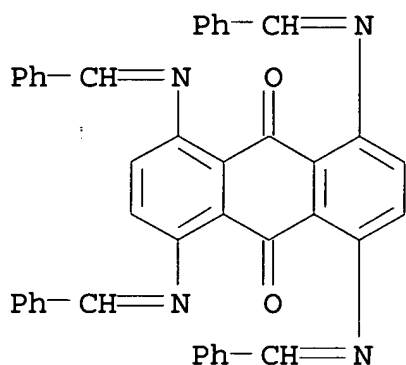
fuel, kerosene, jet fuel, and (heating) fuel oils.

IT 688365-25-5P

(dye; tetrakis(arylimine)anthraquinone dyes for marking of hydrocarbon-based petroleum fuels and products)

RN 688365-25-5 ZCAPLUS

CN 9,10-Anthracenedione, 1,4,5,8-tetrakis[(phenylmethylene)amino] - (9CI) (CA INDEX NAME)

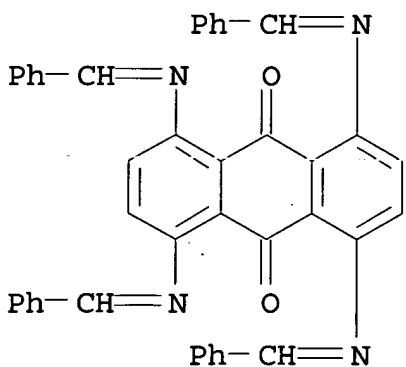


IT 688365-25-5DP, derivs.

(dyes; tetrakis(arylimine)anthraquinone dyes for marking of hydrocarbon-based petroleum fuels and products)

RN 688365-25-5 ZCAPLUS

CN 9,10-Anthracenedione, 1,4,5,8-tetrakis[(phenylmethylene)amino] - (9CI) (CA INDEX NAME)



IT 688365-25-5P

(dye; tetrakis(arylimine)anthraquinone dyes for marking of hydrocarbon-based petroleum fuels and products)

IT 688365-25-5DP, derivs.

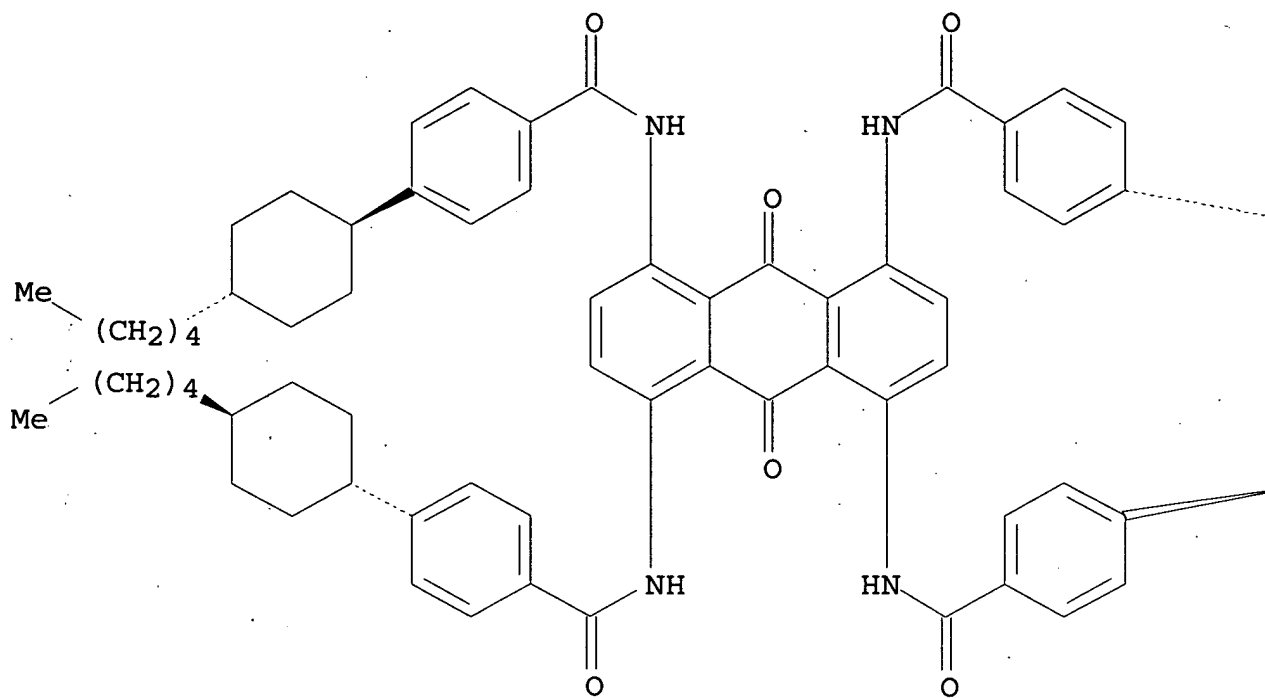
(dyes; tetrakis(arylimine)anthraquinone dyes for marking of

hydrocarbon-based petroleum fuels and products)

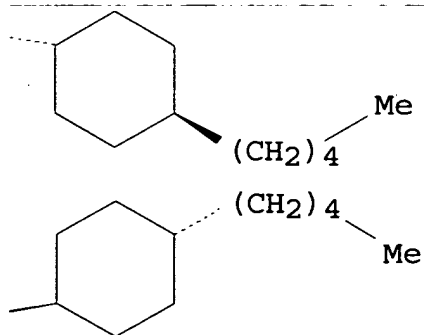
L15 ANSWER 2 OF 8 ZCAPLUS COPYRIGHT 2005 ACS on STN  
2004:266593 Document No. 141:14363 An unusual effect of liquid crystal  
host on the absorption properties of "guest-host" mixture.  
Chigrinov, Vladimir; Prudnikova, Elena; Ng, Kwan Wah; Drushlyak,  
Alexander; Kwok, Hoi Sing (Center for Display Research, Hong Kong  
University of Science and Technology, Hong Kong, Peop. Rep. China).  
Japanese Journal of Applied Physics, Part 1: Regular Papers, Short  
Notes & Review Papers, 43(3), 1100-1101 (English) 2004. CODEN:  
JAPNDE. Publisher: Japan Society of Applied Physics.  
AB The authors have obsd. for the first time the effects of  
considerable changes in the order parameter and the wavelength shift  
of the max. absorption in the "guest-host" mixt. of liq. crystal  
("host") with dichroic dye ("guest") under UV-light illumination,  
dependent on the liq. crystal host.  
IT 694515-59-8  
(guest; behavior of anthraquinone guest dye in different  
guest-host liq. crystal mixts.)  
RN 694515-59-8 ZCAPLUS  
CN Benzamide, N,N',N'',N'''-(9,10-dihydro-9,10-dioxo-1,4,5,8-  
anthracenetetrayl)tetrakis[4-(trans-4-pentylcyclohexyl)- (9CI) (CA  
INDEX NAME)

Relative stereochemistry.

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IT 694515-62-3D, deriv.

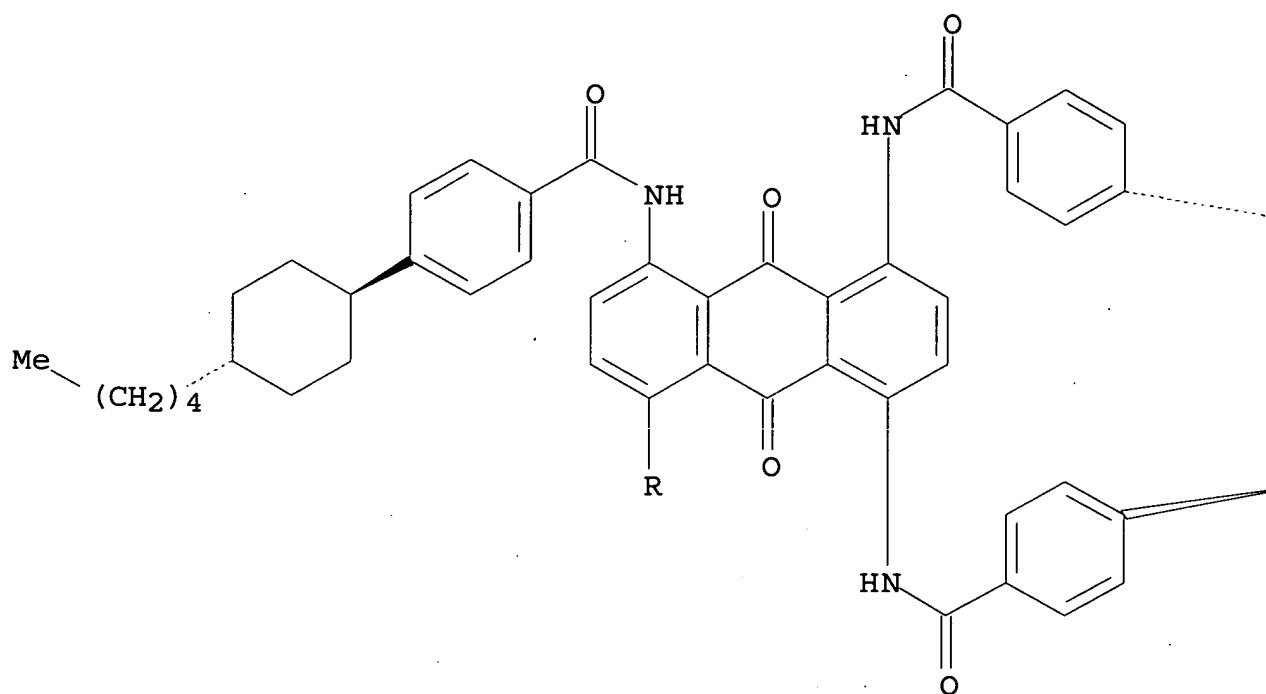
(photoredn. of anthraquinone dye in liq. crystal mixts. in presence of fluorobenzonitrile derivs.)

RN 694515-62-3 ZCAPLUS

CN Benzamide, N-[9,10-dihydro-9,10-dioxo-4,5,8-tris[[4-(trans-4-pentylcyclohexyl)benzoyl]amino]-1-anthracenyl]-N-[(3-fluorophenyl)iminomethyl]-4-(trans-4-pentylcyclohexyl)- (9CI) (CA INDEX NAME)

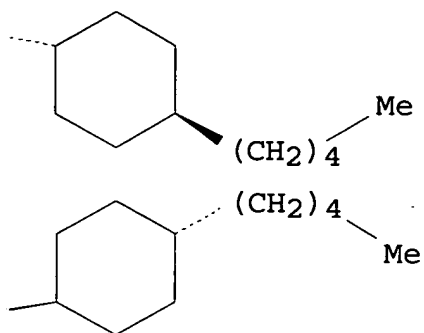
Relative stereochemistry.

PAGE 1-A

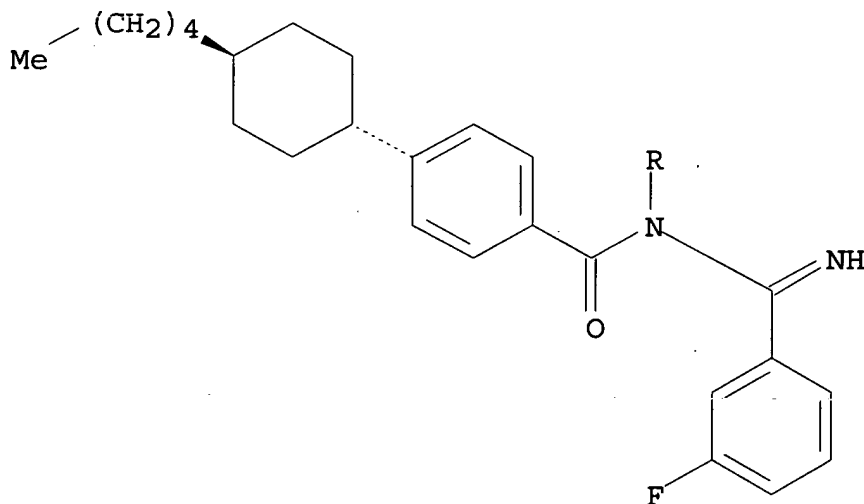




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IT 694515-59-8

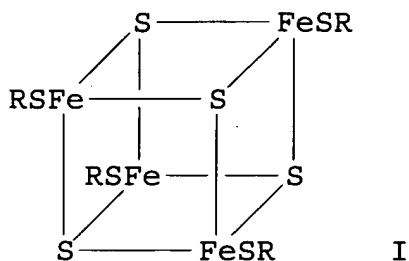
(guest; behavior of anthraquinone guest dye in different guest-host liq. crystal mixts.)

IT 694515-62-3D, deriv.

(photoredn. of anthraquinone dye in liq. crystal mixts. in presence of fluorobenzonitrile derivs.)

1988:437363 Document No. 109:37363 An electron transfer reaction catalyzed by a synthetic iron-sulfur cluster in cetyltrimethylammonium bromide (CTAB) micelles. Tabushi, Iwao; Kuroda, Yasuhisa; Sasaki, Yoro (Dep. Synthetic Chem., Kyoto Univ., Kyoto, 606, Japan). Journal of the Chemical Society, Chemical Communications (21), 1622-3 (English) 1987. CODEN: JCCCAT. ISSN: 0022-4936.

GI



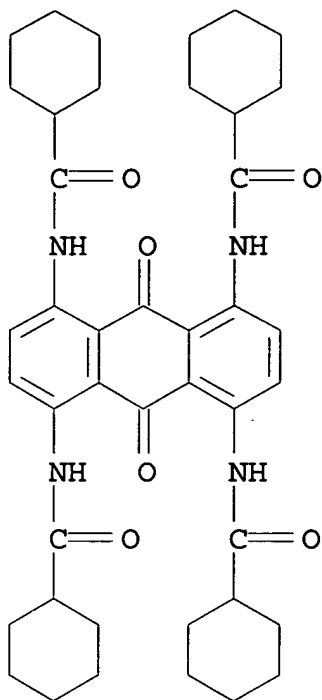
AB The synthetic Fe-S cluster I [R = CH<sub>2</sub>CH(CO<sub>2</sub>Na)NHCO(CH<sub>2</sub>)<sub>16</sub>Me-L] in CTAB micelles catalyzed electron-transfer reaction between S<sub>2</sub>O<sub>4</sub><sup>2-</sup> ion and acridine derivs. In contrast, no appreciable acceleration was obsd. for the corresponding reaction of anthraquinone derivs.

IT 115219-50-6

(electron-transfer reaction of, with dithionite, effect of synthetic iron-sulfur cluster on)

RN 115219-50-6 ZCAPLUS

CN Cyclohexanecarboxamide, N,N',N'',N'''-(9,10-dihydro-9,10-dioxo-1,4,5,8-anthracenetetrayl)tetrakis- (9CI) (CA INDEX NAME)



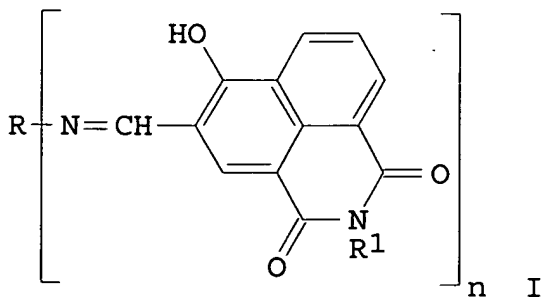
IT 115219-50-6

(electron-transfer reaction of, with dithionite, effect of synthetic iron-sulfur cluster on)

L15 ANSWER 4 OF 8 ZCAPLUS COPYRIGHT 2005 ACS on STN

1981:408804 Document No. 95:8804 Anthraquinone-azomethine dyes and their use in coloring organic macromolecular materials. Neeff, Ruetger; Rolf, Meinhard; Mueller, Walter (Bayer A.-G., Fed. Rep. Ger.). Ger. Offen. DE 2931711 19810219, 43 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1979-2931711 19790804.

GI



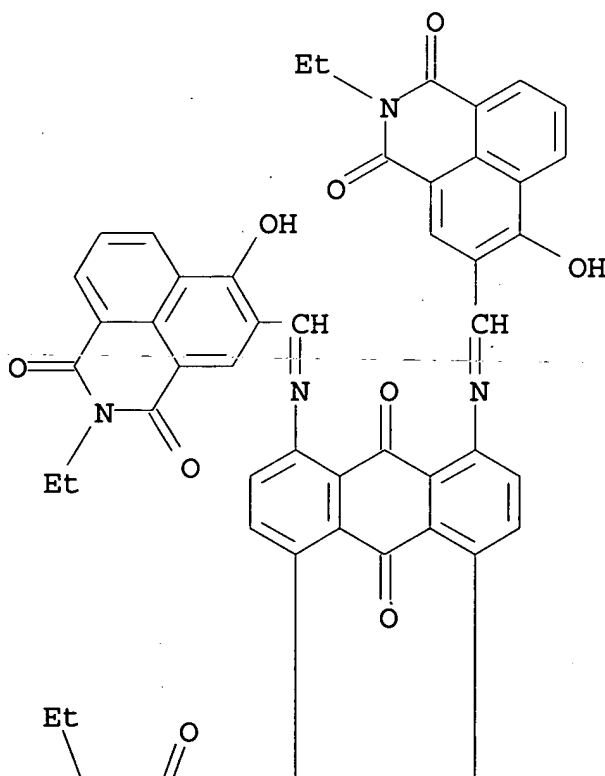
AB Light- and migration-fast pigments of general structure I are prepd., where R = sulfo group-free anthraquinone residue contg. .ltoreq.5 condensed rings, R1 = H, aryl, heteroaryl, cycloalkyl, alkyl, hydroxyalkyl, aminoalkyl, alkyl contg. O or S atoms in its chain, anilino, or amino and n = 1-4. I can be used to pigment coatings, inks, paper, plastics, rubber, and textile fibers. Thus, condensation of 1-aminoanthraquinone (II) [82-45-1] with HC(OMe)<sub>3</sub> in PhNO<sub>2</sub> at 140-5.degree. and treatment of the resultant 1-[(methoxymethyl)amino]anthraquinone [77264-60-9] with 4-hydroxy-N-methylnaphthalimide (III) [784-03-2] at 140-5.degree. gave I(R = anthraquinon-1-yl, R1 = Me, n = 1) [77401-16-2], a yellow-red pigment, also prepd. by successive reaction of II with DMF-SOCl<sub>2</sub> and III. Numerous other I were similarly prepd. Pigmentation of a large variety of substrates is also described.

IT **77401-18-4P**  
(pigment, manuf. of)

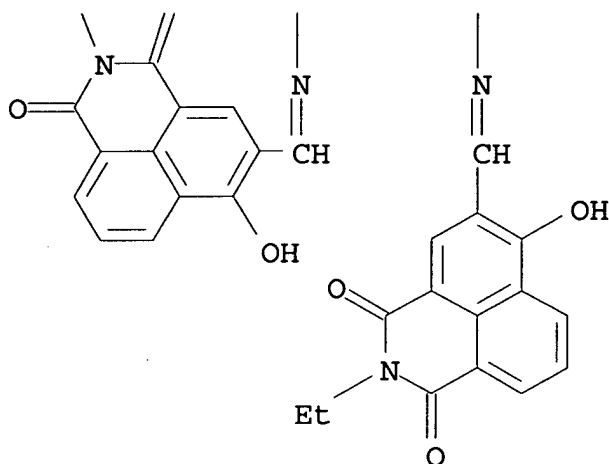
RN 77401-18-4 ZCAPLUS

CN 1H-Benz[de]isoquinoline-1,3(2H)-dione, 5,5',5'',5'''-[(9,10-dihydro-9,10-dioxo-1,4,5,8-anthracenetetrayl)tetrakis(nitrilomethylidyne)]te trakis[2-ethyl-6-hydroxy- (9CI) (CA INDEX NAME)

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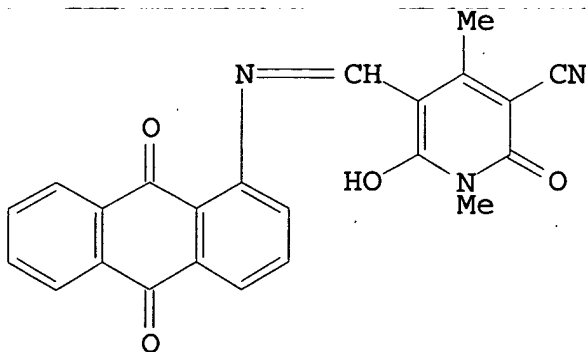
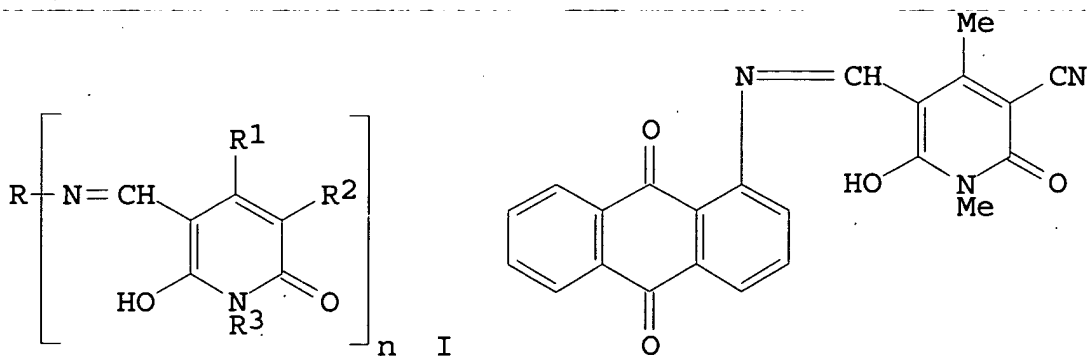
PAGE 2-A



IT 77401-18-4P  
(pigment, manuf. of)

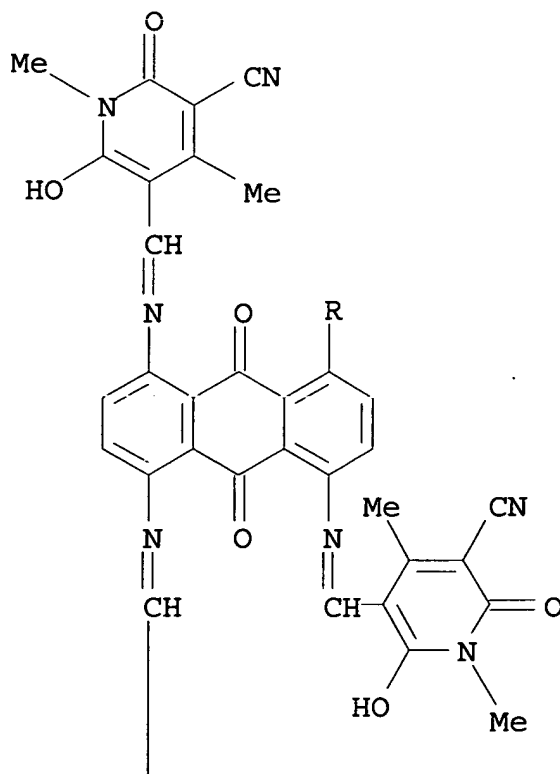
L15 ANSWER 5 OF 8 ZCAPLUS COPYRIGHT 2005 ACS on STN  
1981:210292 Document No. 94:210292 Anthraquinone-azomethines and their  
use as dyes and pigments. Neeff, Ruetger; Rolf, Meinhard; Mueller,  
Walter (Bayer A.-G., Fed. Rep. Ger.). Ger. Offen. DE 2931710  
19810219, 47 pp. (German). CODEN: GWXXBX. APPLICATION: DE  
1979-2931710 19790804.

GI

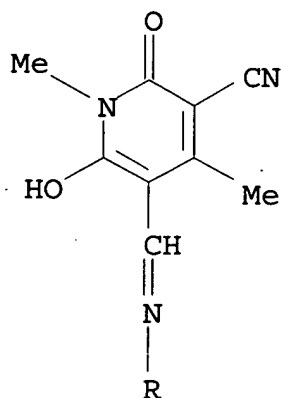
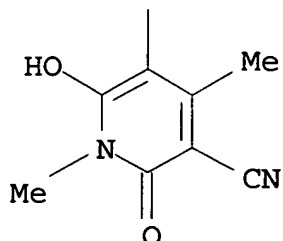


- AB Title compds. of general structure I are prepd., where R = sulfo group-free anthraquinone residue contg. .ltoreq.5 condensed rings, R1 = H, alkyl, Ph, carboxy, carbalkoxy, or OH, R2 = H, halogen, NO2, CN, carbamoyl, sulfamoyl, sulfo ester, acyl, carbalkoxy, phenylsulfonyl or heteroaryl group, R3 = aryl, heteroaryl, cycloalkyl, or alkyl, and n = 1-4. I are fast dyes or pigments for coatings, plastics, paper, inks, and synthetic fibers. Thus, ~~reaction of 1-aminoanthraquinone (II) [82-45-1] with HC(OEt)3 in PhNO2 and treatment of the resultant N-ethoxymethylene deriv. [20856-93-3] with 3-cyano-6-hydroxy-1,4-dimethyl-2-pyridone (III) [27074-03-9] gave IV [77264-54-1], a reddish yellow pigment. IV was also prepd. by treating II with DMF-SOCl2 to give the formamidinium chloride deriv. [20919-41-9], followed by reaction with III. Numerous other preparative and use examples are given.~~
- IT 77264-63-2P  
(pigment, manuf. of)
- RN 77264-63-2 ZCAPLUS
- CN 3-Pyridinecarbonitrile, 5,5',5'',5'''-[(9,10-dihydro-9,10-dioxo-1,4,5,8-anthracenetetrayl)tetrakis(nitrilomethylidyne)]tetrakis[1,2-dihydro-6-hydroxy-1,4-dimethyl-2-oxo- (9CI) (CA INDEX NAME)]

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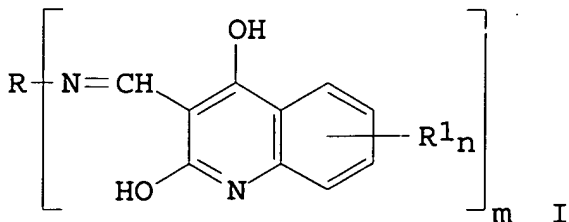
PAGE 2-A



IT 77264-63-2P  
(pigment, manuf. of)

L15 ANSWER 6 OF 8 ZCAPLUS COPYRIGHT 2005 ACS on STN  
1981:141194 Document No. 94:141194 Anthraquinone derivatives for use  
as pigments. Neeff, Ruetger; Meinhard, Rolf; Mueller, Walter (Bayer  
A.-G., Fed. Rep. Ger.). Ger. Offen. DE 2917312 19801106, 38 pp.  
(German). CODEN: GWXXBX. APPLICATION: DE 1979-2917312 19790428.

GI



AB Tautomeric anthraquinone derivs. (I, R = sulfonic acid group-free optionally substituted anthraquinone residue contg. .ltoreq.5 rings; R1 = substituent; m = 1-4, n = 0-4) were prepd. and used to color coatings, inks, acrylic fibers, and plastics fast red to bluish green shades. Thus, 1-aminoanthraquinone [82-45-1] was heated with tri-Et orthoformate and the resulting formimino ester [20856-93-3] heated with 2,4-dihydroxyquinoline [86-95-3] to give I (R = 1-anthraquinonyl, R1 = H, m = 1) [76552-24-4], a reddish yellow pigment.

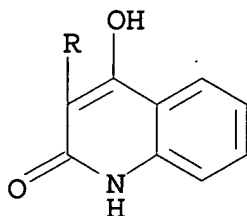
IT 76552-21-1P

(pigment, manuf. of)

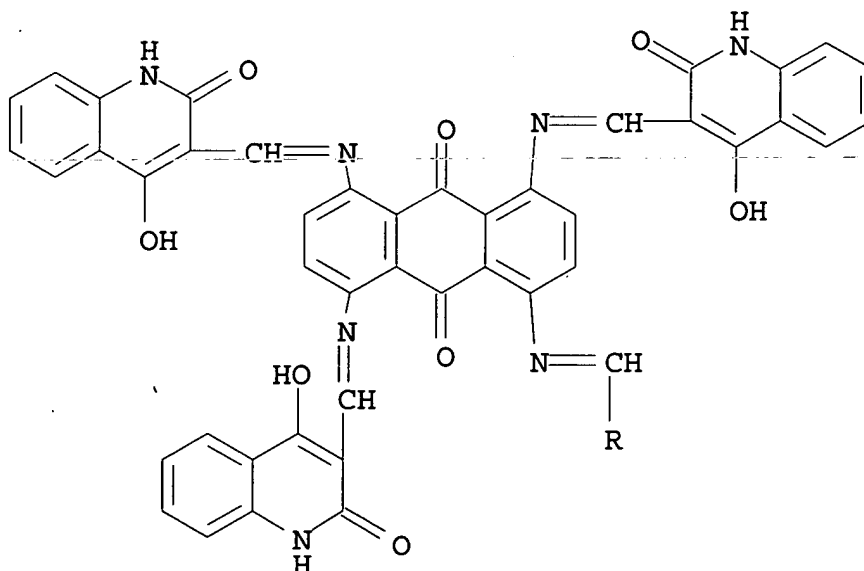
RN 76552-21-1 ZCAPLUS

CN 9,10-Anthracenedione, 1,4,5,8-tetrakis[[(1,2-dihydro-4-hydroxy-2-oxo-3-quinolinyl)methylene]amino]- (9CI) (CA INDEX NAME)

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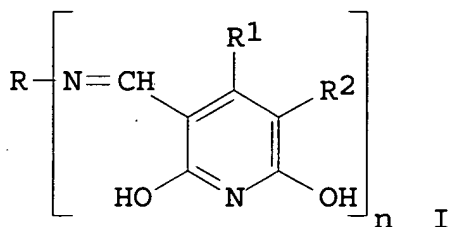




IT 76552-21-1P  
(pigment, manuf. of)

L15 ANSWER 7 OF 8 ZCAPLUS COPYRIGHT 2005 ACS on STN  
1980:216731 Document No. 92:216731 Anthraquinone derivatives and their  
use as pigments. Neeff, Ruetger; Rolf, Meinhard; Mueller, Walter  
(Bayer A.-G., Fed. Rep. Ger.). Ger. Offen. DE 2835067 19800221, 41  
pp. (German). CODEN: GWXXBX. APPLICATION: DE 1978-2835067  
19780810.

GI



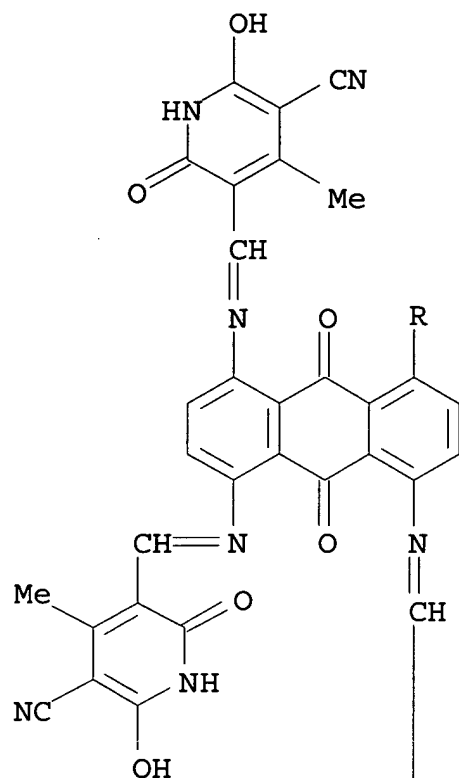
AB Compds. of general structure I, useful as fast pigments for  
coatings, textiles, plastics, rubber, and paper, were prepd., where  
R = a sulfo group-free, optionally substituted anthraquinone residue  
with .ltoreq.5 condensed rings; R1 = H or a C1-4 alkyl group; R2 =  
CN, CO2H, carbalkoxy, optionally substituted carbophenoxy, or an  
optionally substituted 4-hydroxy-2-quinazolinyl group; and n = 1-4.  
Thus, a mixt. of 1-aminoanthraquinone [82-45-1], CH(OEt)3, and  
PhNO2 was heated at 140-5.degree. for 3 h, mixed with  
2,6-dihydroxy-3-cyano-4-methylpyridine [5444-02-0], heated to  
145-50.degree. in 2-3 h, and cooled to 100.degree. to give reddish  
yellow I (R = 1-anthraquinonyl, R1 = Me, R2 = CN, n = 1)  
[71786-65-7]. Other I were similarly prepd.

IT 73733-13-8P  
(pigment, manuf. of)

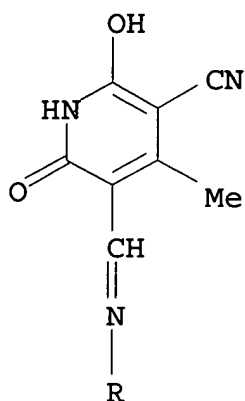
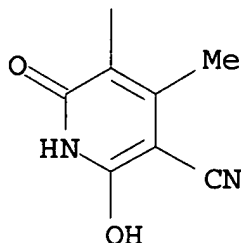
RN 73733-13-8 ZCAPLUS

CN 3-Pyridinecarbonitrile, 5,5',5'',5'''-[(9,10-dihydro-9,10-dioxo-  
1,4,5,8-anthracenetetrayl)tetrakis(nitrilomethylidyne)]tetrakis[1,2-  
dihydro-6-hydroxy-4-methyl-2-oxo- (9CI) (CA INDEX NAME)

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IT 73733-13-8P  
(pigment, manuf. of)

L15 ANSWER 8 OF 8 ZCAPLUS COPYRIGHT 2005 ACS on STN  
1970:436566 Document No. 73:36566 Bis(salicylamido)anthraquinone  
pigments for polymers. Pugin, Andre; Burdeska, Kurt; Model, Ernst  
(Geigy, J. R., A.-G.). Ger. Offen. DE 1951249 19700416, 22 pp.  
(German). CODEN: GWXXBX. APPLICATION: DE 1969-1951249 19691010.

GI For diagram(s), see printed CA Issue.

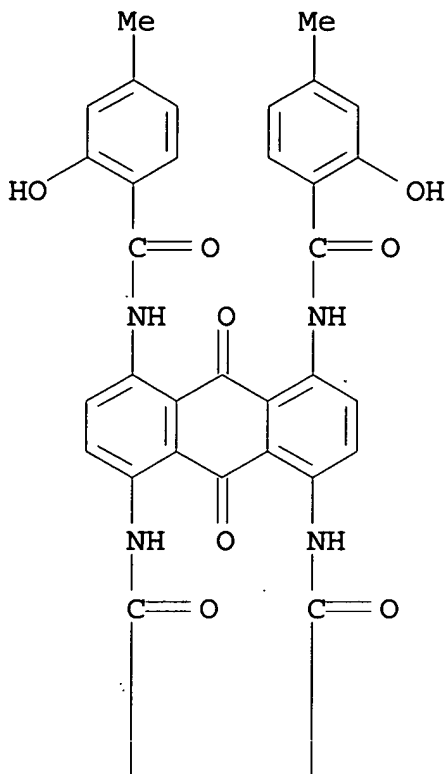
AB 1,5-Bis(salicylamido)anthraquinones (I), fast pigments for polymers,  
were prep'd. from 1,5-diaminoanthraquinones and salicyloyl chlorides.  
Thus, 1,5-diaminoanthraquinone was acylated with  
3,5,2-Cl<sub>2</sub>(HO)C<sub>6</sub>H<sub>2</sub>COCl to give a yellow-pigment. Similarly prep'd.  
were 1,4-bis(salicylamido)anthraquinones, their 1,8-isomers, and  
1,4,5,8-tetrakis(salicylamido)anthraquinones.

IT 28199-07-7P 28231-18-7P  
(prepn. of)

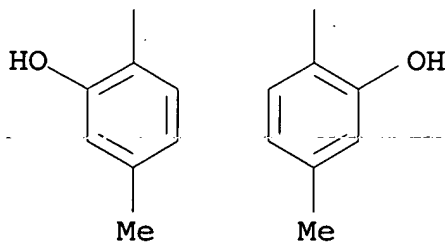
RN 28199-07-7 ZCAPLUS

CN 2,4-Cresotamide, N,N',N'',N'''-(9,10-dihydro-9,10-dioxo-1,4,5,8-  
anthracenetetrayl)tetrakis- (8CI) (CA INDEX NAME)

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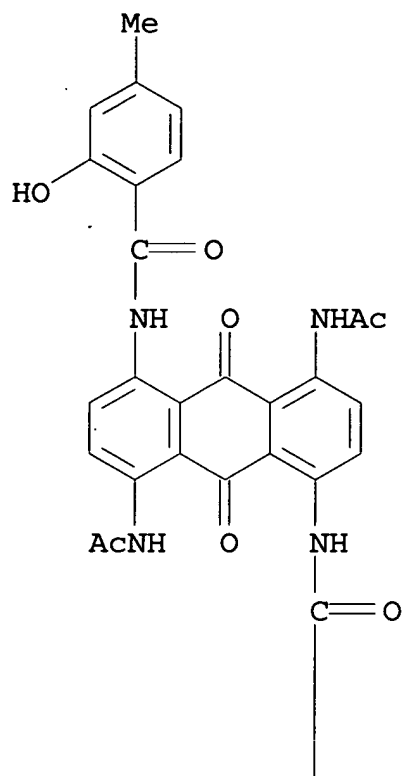


PAGE 2-A

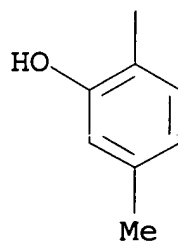


RN 28231-18-7 ZCAPLUS  
CN 2,4-Cresotamide, N,N'-(4,8-diacetamido-1,5-anthraquinonylene)bis-  
(8CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



IT 28199-07-7P 28231-18-7P  
(prepn. of)

=> file beilstein

FILE 'BEILSTEIN' ENTERED AT 14:10:27 ON 14 APR 2005

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schaften

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FILE RELOADED ON OCTOBER 20, 2002

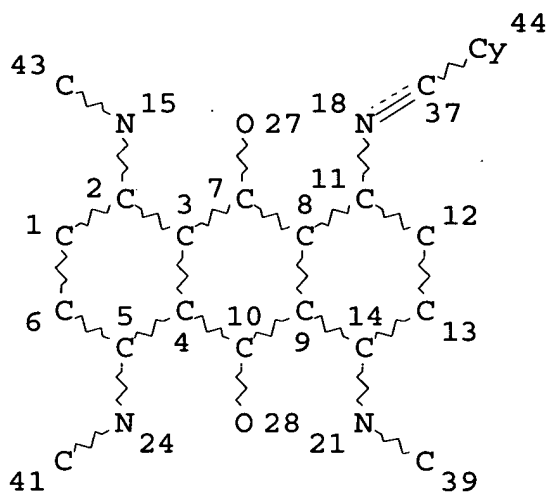
FILE LAST UPDATED ON February 14, 2005

FILE COVERS 1771 TO 2004.

\*\*\* FILE CONTAINS 9,133,317 SUBSTANCES \*\*\*

=> d l17 que stat

L11 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 25

STEREO ATTRIBUTES: NONE

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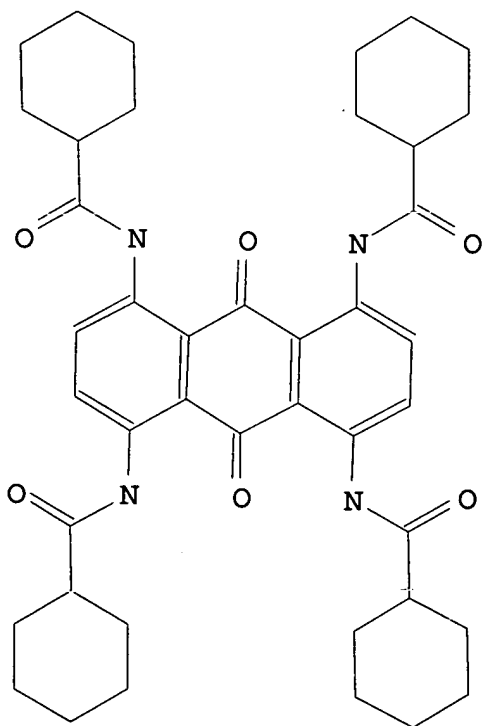
3 ANSWERS

SEARCH TIME: 00.00.03

=> d l17 1-3 ide allref

L17 ANSWER 1 OF 3 BEILSTEIN COPYRIGHT 2005 BEILSTEIN MDL on STN

Beilstein Records (BRN): 6995452  
Molec. Formula (MF): C42 H52 N4 O6  
Molecular Weight (MW): 708.90  
Lawson Number (LN): 15740, 10381  
Compound Type (CTYPE): isocyclic  
Constitution ID (CONSID): 6021699  
Tautomer ID (TAUTID): 6627055  
Beilstein Citation (BSO): 6-14  
Entry Date (DED): 1995/01/25  
Update Date (DUPD): 1995/01/25



## Field Availability:

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MF	Molecular Formula	1

FW	Formular Weight	1
LN	Lawson Number	2
CTYPE	Compound Type	1
CONSID	Constitution ID	1
TAUTID	Tautomer ID	1
BSO	Beilstein Citation	1
DED	Entry Date	1
DUPD	Update Date	1
UVS	UV and Visible Spectrum	1

This substance also occurs in Reaction Documents:

Code	Name	Occurrence
RX	Reaction Documents	1
RXREA	Substance is Reaction Reactant	1

All References:

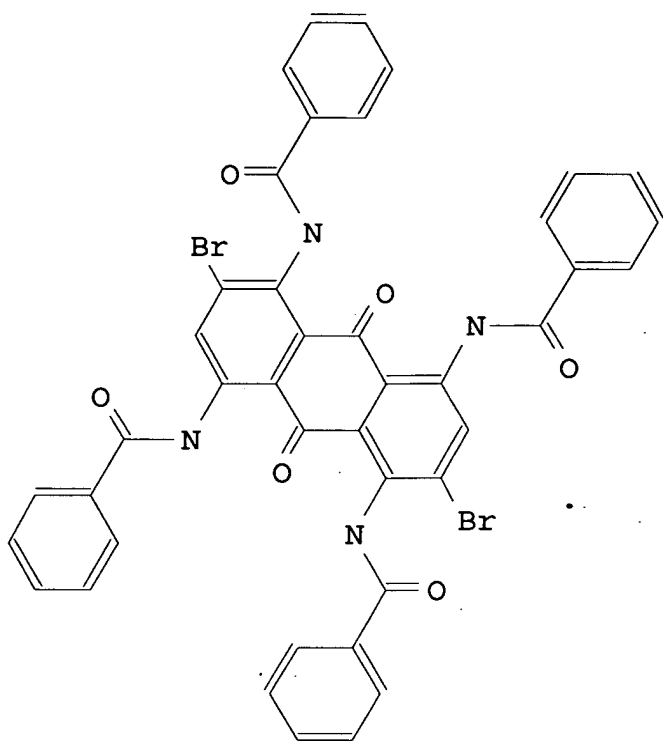
ALLREF

1. Tabushi, Iwao; Kuroda, Yasuhisa; Sasaki, Yoro,  
J.Chem.Soc.Chem.Comm., CODEN: JCCCAT, <1987>, 1622-1623;  
BABS-5914592

L17 ANSWER 2 OF 3 BEILSTEIN COPYRIGHT 2005 BEILSTEIN MDL on STN

Beilstein Records (BRN):	3528885
Chemical Name (CN):	1,4,5,8-tetrakis-benzoylamino-2,6-dibromo-anthraquinone
Molec. Formula (MF):	C42 H26 Br2 N4 O6
Molecular Weight (MW):	842.50
Lawson Number (LN):	15742, 10581
Compound Type (CTYPE):	isocyclic
Constitution ID (CONSID):	3209378
Tautomer ID (TAUTID):	3448810
Beilstein Citation (BSO):	0-14-00-00220
Entry Date (DED):	1990/02/15
Update Date (DUPD):	1991/09/20





## Field Availability:

Code	Name	Occurrence
BRN	Beilstein Records	1
CN	Chemical Name	1
MF	Molecular Formula	1
FW	Formular Weight	1
LN	Lawson Number	2
CTYPE	Compound Type	1
CONSID	Constitution ID	1
TAUTID	Tautomer ID	1
BSO	Beilstein Citation	1
DED	Entry Date	1
DUPD	Update Date	1
CPD	Crystal Property Description	1
MP	Melting Point	1

This substance also occurs in Reaction Documents:

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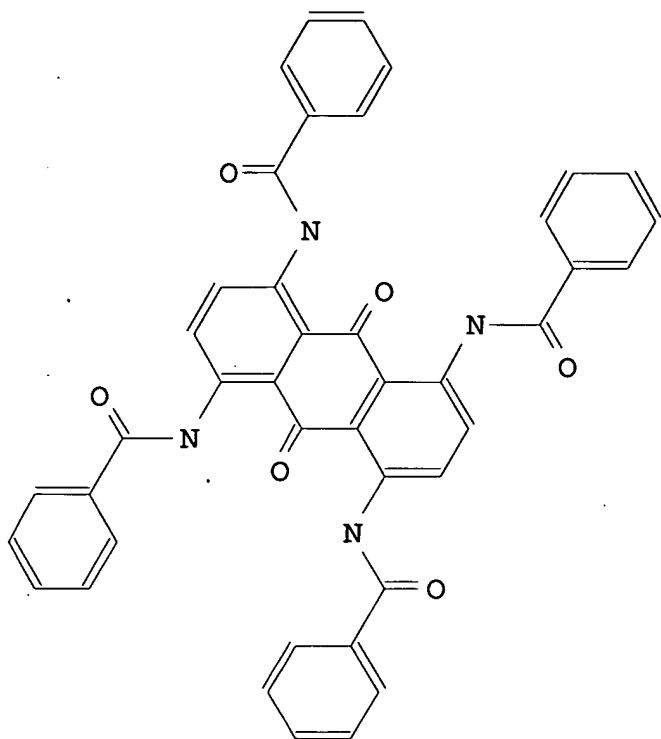
RX	Reaction Documents	1
RXPRO	Substance is Reaction Product	1

All References:  
ALLREF

1. Scholl; Krieger, Chem.Ber., CODEN: CHBEAM, 37, <1904>, 4687

L17 ANSWER 3 OF 3 BEILSTEIN COPYRIGHT 2005 BEILSTEIN MDL on STN

Beilstein Records (BRN):	3527832
Chemical Name (CN):	1,4,5,8-tetrakis-benzoylamino-anthraquinone
Molec. Formula (MF):	C42 H28 N4 O6
Molecular Weight (MW):	684.71
Lawson Number (LN):	15740, 10581
Compound Type (CTYPE):	isocyclic
Constitution ID (CONSID):	3207894
Tautomer ID (TAUTID):	3448506
Beilstein Citation (BSO):	3-14-00-00486
Entry Date (DED):	1990/02/15
Update Date (DUPD):	1991/09/20



## Field Availability:

Code	Name	Occurrence
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CN	Chemical Name	1
MF	Molecular Formula	1
FW	Formular Weight	1
LN	Lawson Number	2
CTYPE	Compound Type	1
CONSID	Constitution ID	1
TAUTID	Tautomer ID	1
BSO	Beilstein Citation	1
DED	Entry Date	1
DUPD	Update Date	1
MP	Melting Point	1

This substance also occurs in Reaction Documents:

Code	Name	Occurrence
RX	Reaction Documents	1

RXPRO Substance is Reaction Product

1

All References:  
ALLREF

1. Patent: Du Pont de Nemours & Co. US 2346726 1942

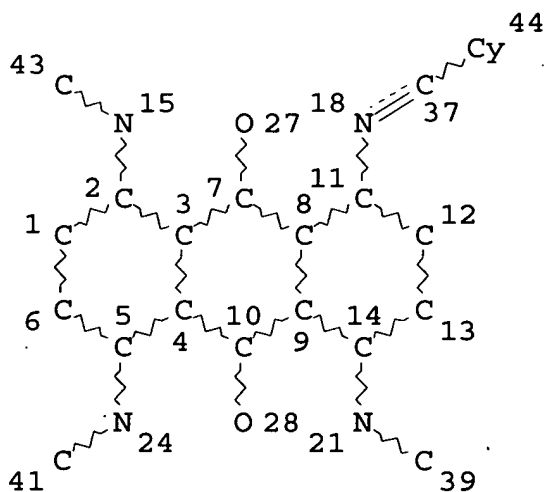
=> file marpat

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USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.  
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.  
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FILE CONTENT: 1988-PRESENT (VOL 142 ISS 15) (20050408/ED)

=> d 124 que stat

L11 STR



NODE ATTRIBUTES:

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DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

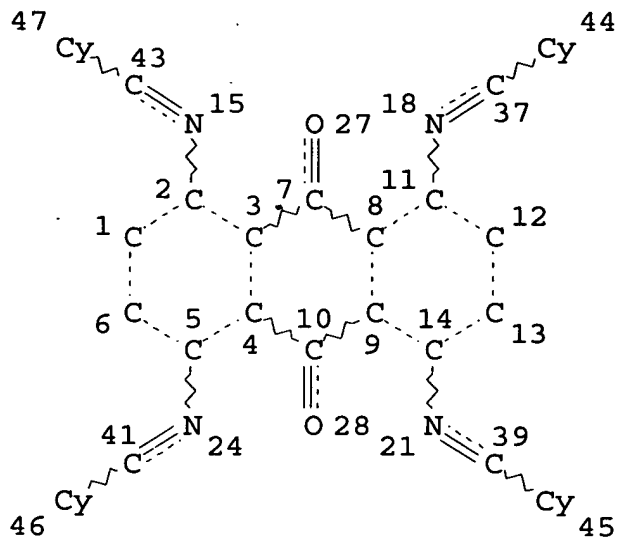
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NUMBER OF NODES IS 25

STEREO ATTRIBUTES: NONE

L19 26 SEA FILE=MARPAT SSS FUL L11

L22 STR



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GGCAT IS UNS AT 46

GGCAT IS UNS AT 47

DEFAULT ECLEVEL IS LIMITED

## GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 28

## STEREO ATTRIBUTES: NONE

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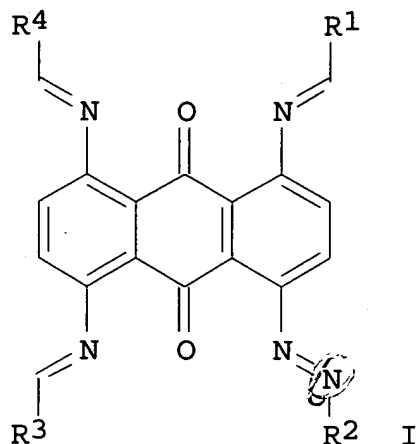
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L25 ANSWER 1 OF 11 MARPAT COPYRIGHT 2005 ACS on STN

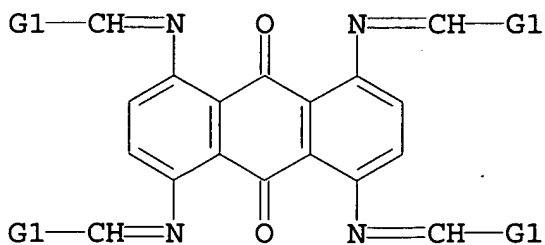
140:425920 Tetrakis(arylimine)anthraquinone dyes for marking of  
 hydrocarbon-based petroleum fuels and products. Ho, Kim Sang;  
 Stephens, Randall Wayne (Rohm and Haas Company, USA)---Eur:--Pat.  
 Appl. EP 1422284 A2 20040526, 5 pp. DESIGNATED STATES: R: AT, BE,  
 CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT,  
 LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK. (English). CODEN:  
 EPXXDW. APPLICATION: EP 2003-256979 20031105. PRIORITY: US

2002-PV428412 20021122.

GI



AB Liq. petroleum streams and hydrocarbon products are invisibly marked by adding tetrakis(arylimine)anthraquinone dyes of general structure I (R1, R2, R3, and R4 are aryl or heteroaryl), with at least one absorption max. of 710-900 nm (preferably 750-900 nm). Typically, I is described with R1, R2, R3, and R4 being either all Ph or all substituted Ph, and is synthesized by condensation reaction of 1,4,5,8-tetraamino-9,10-anthraquinone with RCHO (R is Ph, substituted Ph, aryl, or heteroaryl). Preferably, the above anthraquinone dye is present at 0.01-2 ppm concn. and can contain addnl. dyes (preferably 0.2-2 ppm of a visible dye). The dyes are suitable for marking of such com. hydrocarbon products as lubricating oils, hydraulic fluids, brake fluids, gasoline, diesel fuel, kerosene, jet fuel, and (heating) fuel oils.

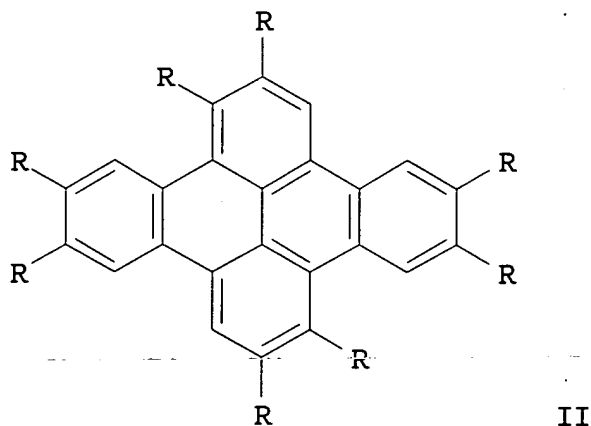
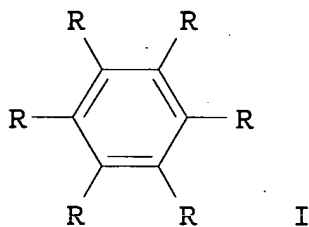
**MSTR 1**

G1 = Ph (SO (1-) G2)  
MPL: claim 1

L25 ANSWER 2 OF 11 MARPAT COPYRIGHT 2005 ACS on STN

130:45426 Lyotropic mesomorphic media and optical compensating films using the same. Demus, Dietrich; Takeuchi, Hiroyuki; Miyazawa, Kazutoshi (Chisso Corp., Japan). PCT Int. Appl. WO 9853027 A1 19981126, 36 pp. DESIGNATED STATES: W: AL, AU, BA, BB, BG, BR, CA, CN, CU, CZ, EE, GE, HU, IL, IS, JP, KR, LC, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, TR, TT, UA, US, UZ, VN, YU, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1997-JP1705 19970521.

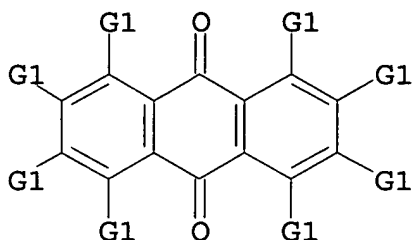
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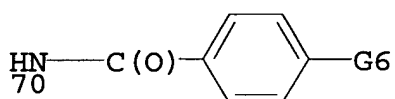
AB Lyotropic mesomorphic media comprise sheet-like mols. and non-polar solvents (e.g. alkanes, decahydronaphthalene and other hydrocarbons), exhibiting neg. optical birefringence and useful for the construction of optical compensators for liq.-crystal display devices. The sheet-like mols. can be low-mol.-wt. mols., polymers with sheet-like side groups, or polymerizable monomers resulting in polymers with sheet-like units and represented by formulas I and II wherein R is an alkyl or alkoxy group in which methylene moiety may

be replaced by O, S, COO, OCO, CH=CH or C.tplbond.C.

**MSTR 14**



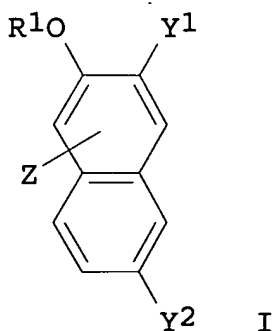
G1 = 70



MPL: claim 17

L25 ANSWER 3 OF 11 MARPAT COPYRIGHT 2005 ACS on STN  
 126:18656 Process for producing naphthol derivatives. Ueno, Ryuzo; Ito, Shigeru; Minami, Kenji; Kitayama, Masaya (Kabushiki Kaisha Ueno Seiyaku Oyo Kenkyujo, Japan). PCT Int. Appl. WO 9632366 A1 19961017, 78 pp. DESIGNATED STATES: W: CA, CN, JP, KR, US; RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (Japanese). CODEN: PIXXD2. APPLICATION: WO 1996-JP979 19960410. PRIORITY: JP 1995-86784 19950412.

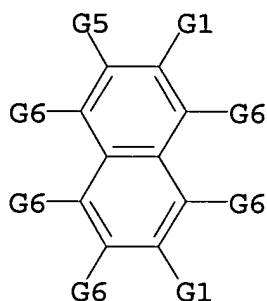
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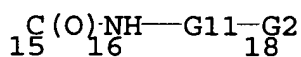


AB The title compds. [I; Y1, Y2 = (CONH)nX, COR2; X = (un)substituted Ph, naphthyl, anthraquinonyl, benzimidazolyl, carbazolyl; R1 = H, an alkali metal, C1-6 alkyl or acyl, phenylalkyl; R2 = OH, C1-6 alkoxy, halo, PhCH2O, PhO, phenacryloxy; Z = H, halo, NO2, NO, NH2, and either of the naphthalene rings may be substituted thereby; n = 1-2; when R2 = OH, R1, Z .noteq. H] are prepd. I are useful materials in the prodn. of dyes, pigments, photosensitive materials, etc. Thus, I (Y1 = Y2 = CO2H, Z = H, R1 = OH) was reacted with o-chloroaniline in the presence of PCl3 to give I (Y1 = Y2 = 2-chlorophenylaminocarbonyl, Z = H, R1 = H).

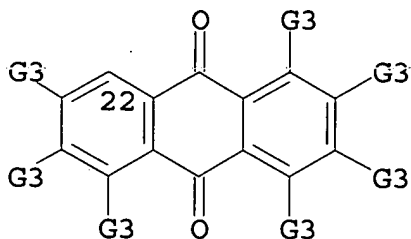
## MSTR 1



G1 = 15



G2 = 22

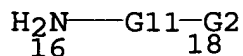


G3 = NHCOPh

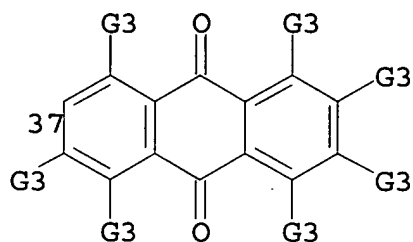
MPL: claim 1

NTE: substitution is restricted

## MSTR 3



G2 = 37



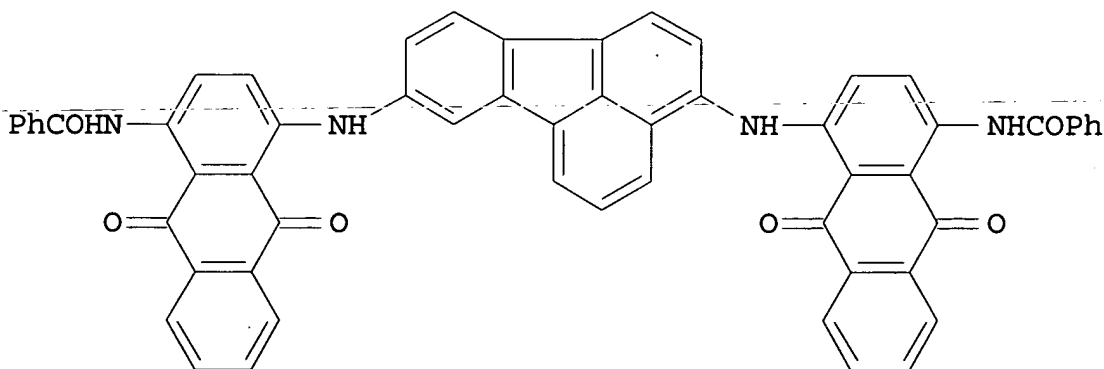
G3 = NHCOPh

MPL: claim 4

NTE: substitution is restricted

L25 ANSWER 4 OF 11 MARPAT COPYRIGHT 2005 ACS on STN  
 124:90268 Preparation of anthraquinone imide derivatives. Dornhagen,  
 Juergen (BASF A.-G., Germany). Ger. Offen. DE 4414693 A1 19951109,  
 7 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1994-4414693  
 19940427.

GI



I

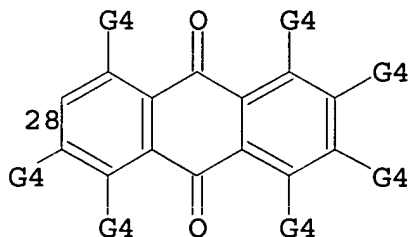
AB Anthraquinone imides are prepd. by condensation of an anthraquinone  
 contg. .gtoreq.1 primary amino group with a halogenated arom. compd.

or by condensing a halogenated anthraquinone with a primary arom. amine in org. solvent contg. a Cu catalyst and a phase-transfer agent such as a quaternary ammonium compd. or a polyoxyalkylene. The imides are intermediates for vat dyes. Thus, 4,9-dibromofluoranthene was heated 12 h with 1-amino-4-benzamidoanthraquinone in Me benzoate contg. CuO, Na<sub>3</sub>PO<sub>4</sub>, and cetyltrimethylammonium methosulfate to give I. Carbazolization of I in H<sub>2</sub>SO<sub>4</sub> provided a brown vat dye. Without the phase-transfer agent, the reaction was only 80% complete after 36 h.

**MSTR 1**

G5—NH—G1

G1 = 28



G4 = NHCOPh (SO (1-) G3)

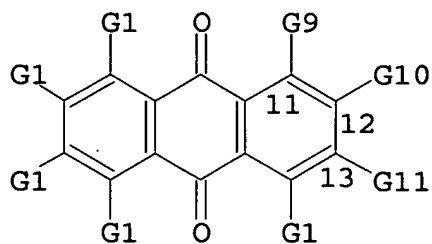
MPL: claim 5

L25 ANSWER 5 OF 11 MARPAT COPYRIGHT 2005 ACS on STN

123:212983 Silver halide photographic material.. Kawamoto, Fumio; Ohno, Shigeru (Fuji Photo Film Co., Ltd., Japan). Eur. Pat. Appl. EP 658804 A2 19950621, 50 pp. DESIGNATED STATES: R: DE, FR, GB, IT, NL. (English). CODEN: EPXXDW. APPLICATION: EP 1994-119964 19941216. PRIORITY: JP 1993-316676 19931216.

AB A Ag halide photog. material is described, which comprises a support having thereon .gtoreq.1 Ag halide emulsion layer, wherein the support is polyester having a glass transition temp. of from 90.degree. to 200.degree. and contains a specific dye and/or an inorg. pigment in a slight amt.

**MSTR 1**



G1 = 266

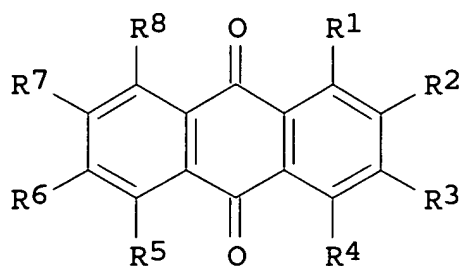
HN—G15  
266

G9 = 307

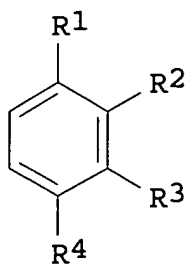
HN—G15  
307

G15 = CPh  
MPL: claim 2

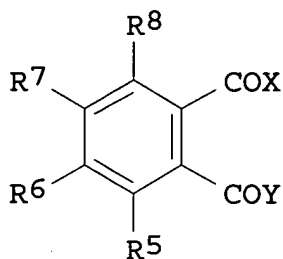
L25 ANSWER 6 OF 11 MARPAT COPYRIGHT 2005 ACS on STN  
123:198450 Manufacture of acylated aromatic compounds. Kaieda, Osamu;  
Masuda, Seiji; Tamaura, Norie (Nippon Catalytic Chem Ind, Japan).  
Jpn. Kokai Tokkyo Koho JP 07118194 A2 19950509 Heisei, 11 pp.  
(Japanese). CODEN: JKXXAF. APPLICATION: JP 1993-261293 19931019.  
GI



I



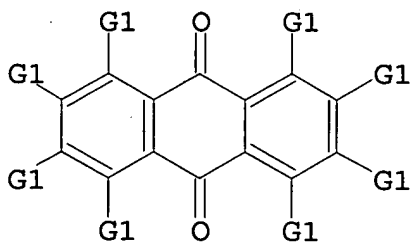
II



III

AB Title compds. are manufd. by treating arom. compds. with an acylating agent in a nitrile solvent in the presence of a Lewis acid catalyst (typically  $\text{AlCl}_3$ ); for example, I [R1-8 = H, halo, C1-8 alkyl, OH, C1-8 alkoxy, (substituted) phenoxy, acetyloxy, benzoyloxy, (substituted) phenylthio, amino, C1-8 alkylamino, (substituted) anilino, (substituted) dianilino, acetylamino, benzoylamino] are manufd. by treating II with III (X, Y = OH; X and Y may be linked to form O linkage). Thus, heating a mixt. of 3,4,5,6-tetrafluorophthalic anhydride 20, 1,4-dimethoxybenzene 15.1, and  $\text{AlCl}_3$  70 g at 190-196.degree. in benzonitrile gave 25.9 g 5,6,7,8-tetrafluoroquinizarin.

## MSTR 1



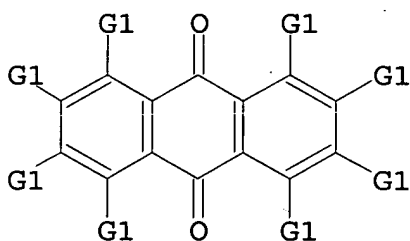
G1 =  $\text{NHCOPh}$   
MPL: claim, 1

L25 ANSWER 7 OF 11 MARPAT COPYRIGHT 2005 ACS on STN

123:183292 Silver halide color photographic light-sensitive material and image-forming process.. Tosaka, Yasuo; Nonaka, Yoshiyuki; Hoshino, Keiichi (Konica Corp., Japan). Eur. Pat. Appl. EP 653673 A1 19950517, 30 pp. DESIGNATED STATES: R: DE, FR, GB, NL. (English). CODEN: EPXXDW. APPLICATION: EP 1994-308503 19941117. PRIORITY: JP 1993-288383 19931117.

AB A Ag halide color photog. light-sensitive material comprises a reflective support comprising polyolefin resin coated paper and on 1 side photog. component layers comprising a hydrophilic colloidal layer contg. a white pigment, a nonsensitive hydrophilic colloidal layer, and a Ag halide emulsion layer, where .gtoreq.1 of the photog. component layers contains an oil-sol. dye or a colored pigment, either of which is not substantially decolorized on a photog.-processing. The photog. material has improved image reproducibility of high light portion.

# MSTR 1



G1 = 25

HN—G3  
25

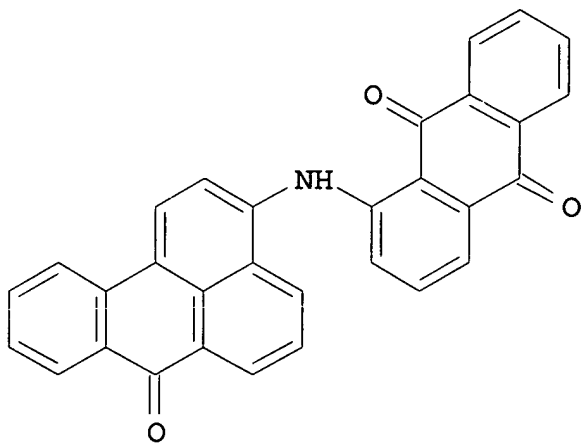
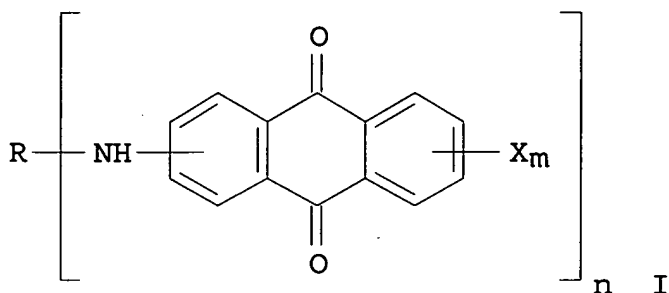
G3 = CPh

MPL: claim 7

L25 ANSWER 8 OF 11 MARPAT COPYRIGHT 2005 ACS on STN

123:85966 Process and catalysts for the preparation of anthraquinonamine vat dye precursors and dyes. Bergmann, Udo; Hoch, Helmut; Kilburg, Heike; Kohlhaupt, Reinhold; Niedenbrueck, Matthias (BASF A.-G., Germany). Eur. Pat. Appl. EP 649833 A1 19950426, 12 pp. DESIGNATED STATES: R: CH, DE, FR, GB, IT, LI. (German). CODEN: EPXXDW. APPLICATION: EP 1994-116049 19941012. PRIORITY: DE 1993-4335975 19931021.

GI

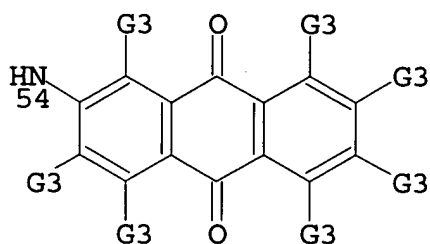


AB The title compds. [I; R = Ph, (un)substituted anthraquinonyl, (un)substituted benzanthranyl, (un)substituted pyranthranyl, etc.; X = halogen, hydroxy, (un)substituted amino, (un)substituted benzoylamino, etc.; m = 0-4; n = 1-4], useful as either anthraquinoidal vat dye precursors or dyes (no data), are prep'd. by the condensation of an amino group-contg. anthraquinone compd. with a haloarom. compd. in the presence of a Cu catalyst and acid-binding compd. in an alkyl benzoate solvent. Thus, 3-bromobenzanthrone was condensed with 1-aminoanthraquinone in the presence of PhCO<sub>2</sub>Me, Cu powder, and anhyd. Na<sub>2</sub>CO<sub>3</sub> at 200.degree., producing anthraquinonamine, II, a precursor of C. I. Vat Green 3 (no data).

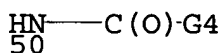
MSTR 1

G1—G2

G2 = 54



G3 = 50



G4 = Ph (SO (1-) G5)

MPL: claim 1

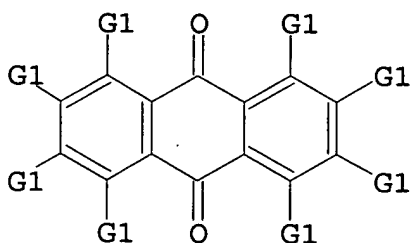
NTE: substitution is restricted

L25 ANSWER 9 OF 11 MARPAT COPYRIGHT 2005 ACS on STN

114:61716 Preparation of anthraquinone carboxamides as dyes and intermediates. Hoch, Helmut; Kilpper, Gerhard (BASF A.-G., Germany). Ger. Offen. DE 3903623 A1 19900809, 4 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1989-3903623 19890208.

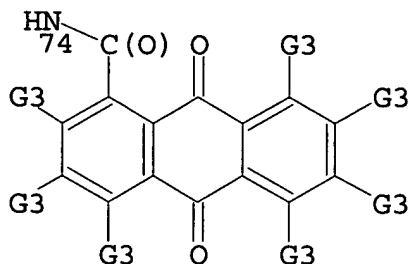
AB (A1CONH)nA2 [A1, A2 = (substituted) anthraquinone residues; n = 1, 2] were prep'd. by reaction of A1COX (X = OH, Cl, Br) with A2(NH2)n in presence of 0.01-1 mol tertiary amine. Thus, a mixt. of 1-aminoanthraquinone-2-carboxylic acid, 2-amino-3-bromoanthraquinone, N,N-dimethylcyclohexylamine, and SOCl2 in o-ClC6H4Cl was heated over 5h to 145.degree. and maintained at that temp. for 3h to give 91% amide of 98.8% purity.

MSTR 1B





G2 = 74



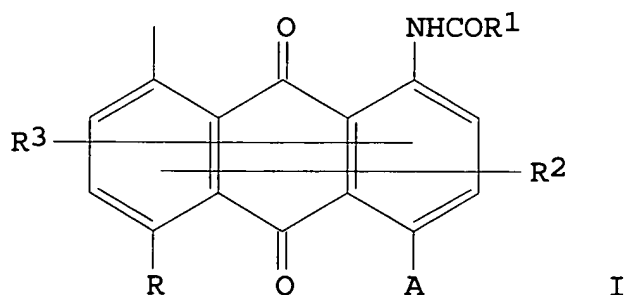
MPL: claim 1

L25 ANSWER 10 OF 11 MARPAT COPYRIGHT 2005 ACS on STN

110:156105 Anthraquinone dichroic dyes for liquid crystal displays.

Ivashchenko, A. V.; Lazareva, T.; Prudnikova, E. K.; Rummyantsev, V. G.; Plyusnina, T. S. (USSR). Fr. Demande FR 2605639 A1 19880429, 29 pp. (French). CODEN: FRXXBL. APPLICATION: FR 1987-14713 19871023. PRIORITY: SU 1986-4134106 19861024.

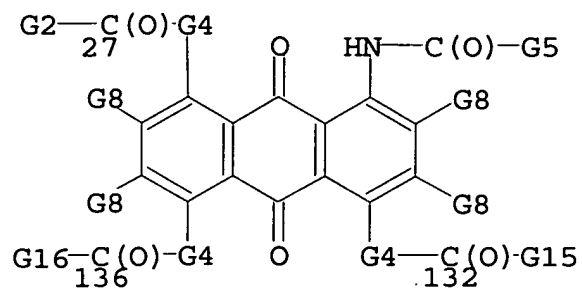
GI



I

AB Anthraquinone compds. I [A, R, R4 = NHCOR1, NHCOR4, O2CR4, O2CR1, OH, alkoxy, NHR4, H; R1 = substituted aryl, substituted pyrido, substituted pyrimidino, substituted cyclohexyl; R2 = C1-8 alkyl, C1-8 alkoxy, C1-8 thioalkoxy; R3 = R2, H; R4 = C1-18 alkyl), useful as dichroic dyes having a neg. dichroism, for liq. crystal materials, are prepd. 1-Amino-4-(octylamino)-2-butylanthraquinone was condensed with 4-octylbiphenylcarbonyl chloride, forming 1,4-bis(4-octylbiphenylbenzamido)-4-(octylamino)-2-butylanthraquinone,  $\lambda_{\text{max}}$  555 nm.

## MSTR 1D



G2 = 29

$p\text{-C}_6\text{H}_4\text{G7}$   
29

G4 = NH  
G5 = 29

$p\text{-C}_6\text{H}_4\text{G7}$   
29

G15 = 29

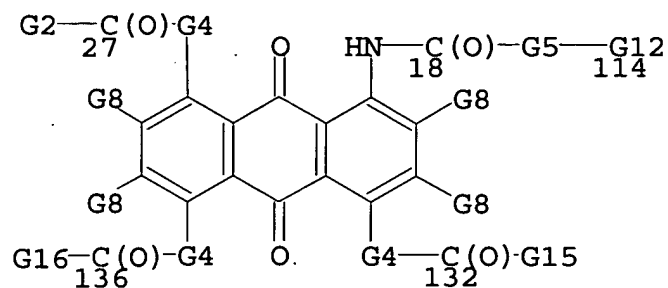
$p\text{-C}_6\text{H}_4\text{G7}$   
29

G16 = 29

$p\text{-C}_6\text{H}_4\text{G7}$   
29

MPL: claim 1

## MSTR 1F

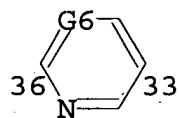


G2 = 29

$p\text{-C}_6\text{H}_4\text{G7}$   
29

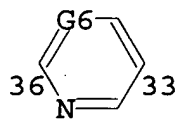
G4 = NH

G5 = 33-114 36-18 / 33-114 36-18



G6 = N

G13 = 33-37 36-27 / 33-37 36-27



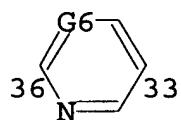
G15 = 29

$p\text{-C}_6\text{H}_4\text{G7}$   
29

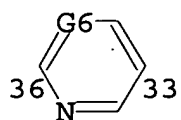
G16 = 29

$p\text{-C}_6\text{H}_4\text{G7}$   
29

G17 = 33-135 36-132 / 33-135 36-132

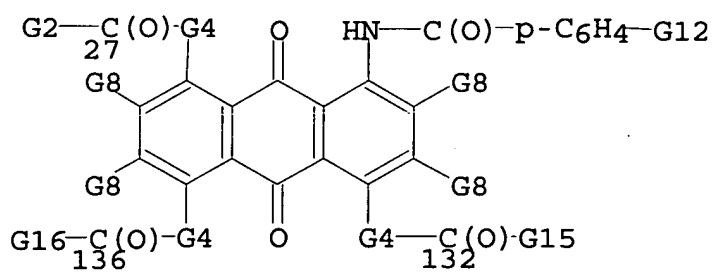


$$G18 = 33-139 \quad 36-136 \quad / \quad 33-139 \quad 36-136$$

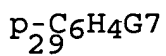


MPL: claim 1

### MSTR 1G

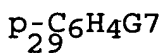


$$G2 = 29$$



$$G4 = \text{NH}$$

$$G15 = 29$$



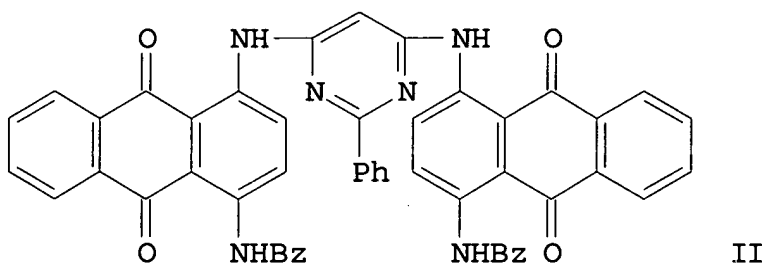
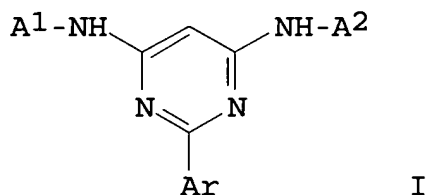
$$G16 = 29$$

$P_{29}C_6H_4G^7$

MPL: claim 1

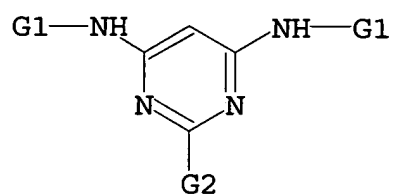
L25 ANSWER 11 OF 11 MARPAT COPYRIGHT 2005 ACS on STN  
109:172121 2-aryl-4,6-diaminopyrimidine vat dyes. Altermatt, Hans  
(Ciba-Geigy A.-G., Switz.). Eur. Pat. Appl. EP 274356 A1 19880713,  
8 pp. DESIGNATED STATES: R: CH, DE, FR, GB, IT, LI. (German).  
CODEN: EPXXDW. APPLICATION: EP 1987-810784 19871230. PRIORITY: CH  
1987-67 19870109.

GI

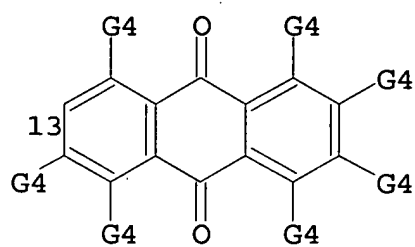


AB The title compds. I (A<sup>1</sup>, A<sup>2</sup> = vat-dye chromophore; Ar = aryl residue), useful for coloring lacquers, and for printing and dyeing of natural and regenerated cellulose textiles, are prepd.  
4,6-Diamino-2-phenylpyrimidine was condensed with  
1-bromo-4-(benzoylamino)anthraquinone, forming II, which was used to  
vat dye cotton in a violet shade.

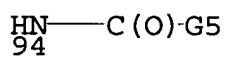
MSTR 1C



G1 = 13



G4 = 94

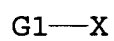


G5 = Ph

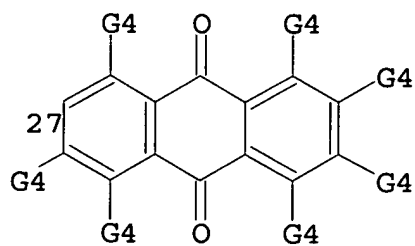
MPL: claim 1

NTE: other vat dye groups are listed in disclosure

### MSTR 3



G1 = 27



G4 = 94

$\text{HN} \text{---} \text{C}(\text{O})\text{---G6}$   
94

G6 = Ph

MPL: claim 6

NTE: other vat dye groups are listed in disclosure